20th Street and Factor Environmental News

Arizona Department of Environmental Quality *March 2002*

The Arizona Department of Environmental Quality (ADEQ) will be conducting an *early response action** (ERA) at the 20th Street and Factor Avenue WQARF site in March 2002. The site is located approximately 1/2 mile south of 16th Street and about 3/4 mile east of 4th Avenue. The boundary is a northwest trending oval extending approximately 1,000 feet from the Houston Fearless facility located at 655 E. 20th St. on the southeast to 14th Street and Rail Avenue on the northwest.

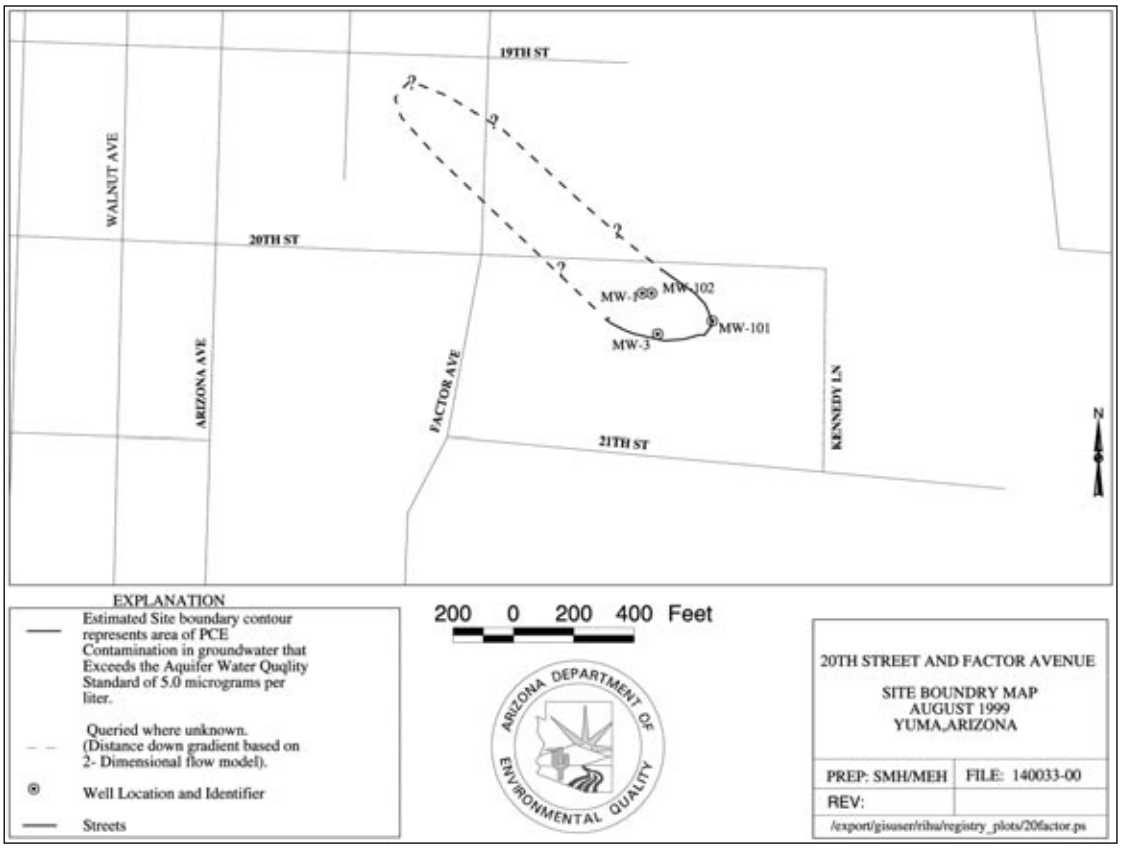
Soil Investigation Completed

Recent sampling of the soils, wastewater disposal system and groundwater monitoring wells at the site indicate that in addition to *tetrachloroethene* (PCE), *cyanide* is also a contaminant of concern. *Potassium ferricyanide* and *sodium thiocyanate* were used in film development and discharged on the property. Analysis of wastewater in the septic systems indicate cyanide concentrations as high as 20 milligrams per liter (mg/l) are present in the wastewater disposal system and appear to be continuing sources of groundwater contamination. Cyanide is present above the *aquifer water quality standard* of 0.2 mg/l in monitor wells at the site.

Historic aerial photos of the site indicated that three areas on the property received wastewater. In addition, two properties to the east of the site received wastewater from the property. Sampling to characterize the extent of cyanide contamination was completed in October 2001. The highest concentration of cyanide was detected in the *disposal pond* located on the east side of the property. Overflow from this pond has caused cyanide contamination to extend approximately 175 feet east of the property.

Potassium ferricyanide and sodium thiocyanate will degrade to hydrogen cyanide in sunlight, which, in large amounts, is very harmful to people. Exposure to high levels of cyanide in the air for a short time harms the brain and heart, and may cause coma and death. Exposure to lower levels of cyanide for a long time may result in breathing difficulties, heart pains, vomiting, blood changes, headaches and enlargement of the thyroid gland. People with high blood cyanide levels have also shown harmful effects such as weakness of the fingers and toes, difficulty walking, dimness of vision, deafness and decreased thyroid gland function.

Analysis of soil samples collected from the surface show



evidence of degradation to simpler cyanide compounds. Thus, ADEQ and the Arizona Department of Health Services recommend the surface soil remediation levels for hydrogen cyanide of 11mg/kg for soils adjacent to the site and 35 mg/kg for soils on the site.

Four subsurface gas samples were collected from areas where potassium ferricyanide and thiocyanate were discharged to the ground surface. These samples were analyzed for hydrogen cyanide to determine if the cyanide compounds are degrading in the subsurface at the site. These samples were non-detect for hydrogen cyanide.

Based on these and other sampling results, ADEQ and our contractor, Geo Trans, are planning to *excavate* to a depth of one foot of the surface soils where the cyanide compounds were discharged. The activities at the site will also include the removal of one *sump* and one *septic system* and the cleaning of two other septic systems still in use at the property.

Work at the site will begin mid to late March and may continue for several weeks. Work will take place during evening hours when most of the businesses are closed.

What to Expect During the Early Response Action

Noise Levels – Noise levels will be relatively high, consisting of diesel and gasoline engines and excavation related sounds. Sustained sound pressure levels may be anticipated at approximately 120 decibels. Higher levels may occur periodically. The sounds will essentially be equivalent to moderate road construction noise. There are no residences adjacent to the facility.

Equipment Involved – Machinery involved in the process may include a backhoe tractor, front loader tractor or bobcat tractor, vacuum pump truck, bin haul truck, various passenger vehicles, and gasoline powered generators. Jack hammers or other concrete breaking equipment may also be used to fragment the concrete tank. Drilling rigs will also be used to extract soil samples to determine if contamination is present or classify the types of soil present in the sample.

All site contractor employees entering the contaminated area will be dressed in full body chemical protective suits and connected to supplied air via an air line system. The presence of cyanides in the sludge and waste water in the septic tanks makes this level of protection necessary for the workers in the contaminated area since they have a higher potential for contact with the waste material. ADEQ does not anticipate *transient exposures* outside of the contaminated area, but will conduct air monitoring outside the area to determine if releases are occurring.

Dust control will be included as a component of the project to limit the amount of airborne particulates generated during the excavation and removal process.

Traffic Delays – Because the work is to be performed within the Houston Fearless property boundaries, traffic delays other than those caused by slow moving vehicles as equipment and haul trucks are mobilized to and from the site are not expected.

Schedule of Events – Excavation work is expected to begin mid to late March 2002. The excavation, waste pumping and tank removal work will last approximately several weeks. Further site investigation work including soil borings, groundwater monitor wells, soil vapor monitor wells, and possibly *soil vapor extraction well* installation will follow immediately after the excavation and removal work. The boring and monitor well/SVE installation is anticipated to last at least an additional two months, depending on the number of borings required to properly characterize the site for *remediation*.

Glossary

Aquifer water quality standard (AWQS) – These are enforceable standards set to protect the quality of the water in aquifers for present and foreseeable uses, including consumption of the water by humans.

Cyanide – Cyanide is a very poisonous chemical usually found joined with other chemicals to form compounds. Examples of simple cyanide compounds are hydrogen cyanide, sodium cyanide and potassium cyanide. Cyanide and hydrogen cyanide are used in electroplating, metallurgy, production of chemicals, photographic development, making plastics, fumigating ships and some mining processes.

Disposal pond – A pond used for final placement or destruction of toxic, radioactive or other wastes, polluted soils, etc.

Early response action – An early response action is a remedial (cleanup) action that is performed prior to the final remedy and often prior to the completion of the remedial investigation because timeliness of response is particularly important to address a current risk to public health or the environment, protect or provide a sup-

ply of water, prevent further release of a contaminant source into the environment, or control or contain contamination where such actions are expected to reduce the scope or cost of the final remedy at the site.

Excavate – To remove soil by scooping or digging out an area using a backhoe tractor.

Potassium ferricyanide – A cyanide compound consisting of cyanide, potassium and iron.

Remediation – Actions taken to deal with the release of a hazardous substance that could affect people or the environment. The term "cleanup" is sometimes used interchangeably with the terms remedial action, removal action, response action and remedy.

Septic system – A system in which a continuous flow of sewage is decomposed by bacteria.

Sump – An area, usually low land or structure, created to receive drainage.

Sodium thiocyanate – A cyanide compound consisting of cyanide, sodium and sulfur.

Soil remediation level (SRL) – SRLs are risk-based standards for contaminants in soil that were developed by the Arizona Department of Health Services. SRLs are protective of human health, including sensitive groups, over a lifetime. The SRLs can be found in Arizona Administrative Code (AAC) R18-7-201 et seq.

Soil vapor extraction well (SVE) – SVE is a commonly used technique for cleaning up contaminated soils. Soil vapor extraction draws gases from the contaminated soils and through the extraction system where they are treated or discharged into the air. Whether or not the extracted gas is treated prior to being discharged into the air depend on the amount and type of contamination present. The term soil vapor extraction is often used interchangeably with soil gas extraction.

Tetrachloroethene (PCE) – A clear, colorless, nonflammable solvent that readily evaporates at room temperature. PCE is used for dry cleaning of fabrics and degreasing/drying of metals.

Transient exposures – Temporary exposure to dust particles that may be caused by excavation.

If you have questions or would like more information on the 20th Street and Factor Avenue WQARF Site please contact Community Involvement Coordinator Stacy Duffy or Project Manager Scott Goodwin at (800) 234-5677, Ext. 2265 or Ext. 4452.